

Dear Family,

I want to start this newsletter talking about the sleepy students. As your child's teacher, I am concerned with their learning of geometry. It is difficult to learn when students are sleep deprived. It is something that isn't just an issue for students, but for all of society. I am certainly guilty of being sleep deprived on occasions. There was an article in *Slate magazine* ([http://www.slate.com/articles/health\\_and\\_science/new\\_scientist/2013/04/teenage\\_sleep\\_patterns\\_why\\_school\\_should\\_start\\_later.single.html](http://www.slate.com/articles/health_and_science/new_scientist/2013/04/teenage_sleep_patterns_why_school_should_start_later.single.html)) entitled "The Science of Sleepy Teenagers" Although the article main focus was having high school students start the day much later, it had a few good tips. Teenagers need about 9 hours of sleep to be alert in school. From my experience with my own children, I failed profusely in this category. My favorite line from the article is "All in all, a tired adolescent is a grumpy, moody, insensitive, angry, and stressed one." I just thought those were the teenage years. Another study last week linked lack of sleep and depression in teenagers.



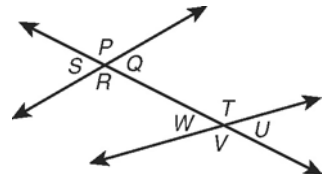
Some suggestions to help your child sleep are:

- Ensure the bedroom is a place that promotes sleep.
- The room should be dark and not too warm.
- Don't text, use a computer, or watch TV for at least half an hour before trying to sleep. Computers, video games, TV's, cell phones, etc. should be in a different room other than a bedroom.
- Avoid bright lights.
- Try not to nap during the day.
- Seek out natural light in the morning to adjust the body clock and sleep patterns to an earlier time. (Good luck with this one during day light savings.)
- Avoid caffeinated drinks after lunch.

From to sleep to math—

In this chapter, your child will learn about parallel and perpendicular lines and the angles associated with these lines. Your child will learn to recognize a variety of angle pairs and then use this knowledge to prove that lines are parallel or perpendicular. Your child will also learn how to determine the slope of a line in a coordinate plane and how to write the equation for the line in two different ways.

Your child will recognize four different types of angle pairs. In this figure, there are four pairs of corresponding angles.  $\angle S$  and  $\angle W$  are corresponding;  $\angle P$  and  $\angle T$  are corresponding;  $\angle R$  and  $\angle V$  are corresponding; and  $\angle Q$  and  $\angle U$  are corresponding. Corresponding angles lie on the same side of the transversal.



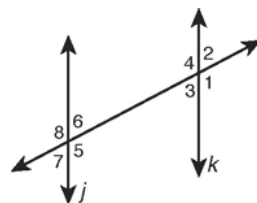
Another set of angles in this figure are the alternate interior angles. In this case,  $\angle R$  and  $\angle T$  are opposite interior angles, as are  $\angle Q$  and  $\angle W$ . It's important to note the relative position of the angles with respect to the transversal.

It is possible, in a figure like this one, to find pairs of alternate exterior angles. For example,  $\angle P$  and  $\angle V$  are alternate exterior angles, as are  $\angle S$  and  $\angle U$ .

The last set of angle pairs your child will learn to recognize is the same-side interior angles. In this diagram,  $\angle R$  and  $\angle W$  are one pair of same-side interior angles.  $\angle Q$  and  $\angle T$  are another pair. Identifying the types of angles is hopefully a review from middle school. The relationships that occur is what we concentrate on in high school.

Your child will learn about congruent angles associated with parallel lines. This figure shows two parallel lines,  $j$  and  $k$ .

The Same-Side Interior Angles Theorem can be used to show that  $m\angle 5 + m\angle 3 = 180^\circ$  and that  $m\angle 6 + m\angle 4 = 180^\circ$ . The theorem states that if two parallel lines are cut by a transversal, then the two pairs of same-side interior angles are supplementary.

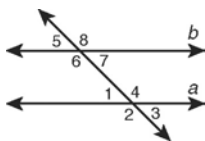


The Alternate Exterior Angles Theorem shows that  $\angle 2$  and  $\angle 7$  in the figure are congruent. The theorem states that if two parallel lines are cut by a transversal, the two pairs of alternate exterior angles are congruent.

Your child will be able to prove that  $\angle 6 \cong \angle 3$  by using the Alternate Interior Angles Theorem. This theorem states that if two parallel lines, such as  $j$  and  $k$  in this figure, are cut by a transversal, then the pairs of alternate interior angles are congruent.

Your child will then use the converses of the Corresponding Angle Postulate and the theorems referred to above to prove that lines are parallel. Look at the

following proofs as examples of the type of work that will be expected of your child.



**Given:**  $\angle 2 \cong \angle 3$ ;  $\angle 3 \cong \angle 6$

**Prove:**  $a \parallel b$

**Proof:**

Statements	Reasons
1. $\angle 2 \cong \angle 3$ ; $\angle 3 \cong \angle 6$	1. Given
2. $\angle 2 \cong \angle 6$	2. Transitive Property of Congruence
3. $a \parallel b$	3. Converse of Corresponding Angles Postulate

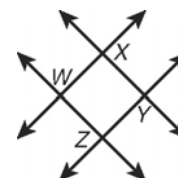
Your child will then learn to prove that two lines are perpendicular.

**Given:**  $\overline{WZ} \parallel \overline{XY}$ ;  $\overline{XY} \perp \overline{ZY}$

**Prove:**  $\overline{WZ} \perp \overline{ZY}$

**Proof:**

Statements	Reasons
1. $\overline{WZ} \parallel \overline{XY}$ ; $\overline{XY} \perp \overline{ZY}$	1. Given
2. $\overline{WZ} \perp \overline{ZY}$	2. Perpendicular Transversal Theorem

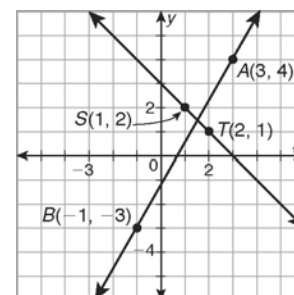


Also in this chapter, your child will learn to find the slope of a line and to write equations describing lines in a coordinate plane.

Your child will learn to determine the slope of line AB. This can be done as follows:

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{(-3) - 4}{(-1) - 3} = \frac{-7}{-4} = \frac{7}{4}$$

Your child will also be asked to find the equation of a line on a coordinate plane.



The equation for line AB can be found as follows:

$$y - y_1 = m(x - x_1)$$

$$y - (4) = \frac{7}{4}(x - 3)$$

The following are the assignments and the assessments for this unit. As a reminder the actual dates when the assignments are assigned can be found on the [assignment calendar](#) on my [school webpage](#). This can be found under classrooms on the [high school webpage](#).

### **Assignments and Assessments**

Chapter 3 pretest & skills.

3-1 Lines and Angles (p 149) 15-25 odd.

3-3 Proving Lines Parallel (pp 166) 13, 15, 19, 21, 22, 37-39, 41-42.

3-4 Perpendicular Lines (pp 175) 6-10, 12, 22, 23, 26, 28, 36.

Ready to Go On Section 3A pretest & posttests.

#### **Chapter 3 Quiz 1.**

3-5 Slopes of Lines (p 186) 10, 11, 13-17.

3-6 Lines in the Coordinate Plane (194) 13, 15, 17-21, 23, 28, 32, 36, 53, 56, 57.

Ready to Go On Section 3b pre-test & posttests.

#### **Chapter 3 Quiz 2.**

Chapter 3 Practice Test.

#### **Chapter 3 Test.**